REMARKS/ARGUMENTS

Claim Rejections – 35 USC 112

Examiner has rejected Claims 26 – 38 under 35 USC 112, first paragraph. Specifically, Examiner states,

> Claim 26 calls for a computer that "automatically selectively activates and deactivates said at least one pump ... so that the temperature of the water inside said spa and spa piping is maintained above the freezing level"; however, the specification merely supports that "the computer selectively activates and deactivates the heating element and the at least one pump" to maintain the temperature of the water inside the spa and the spa's associated piping above the freezing level (note lines 5-7 and 11-12 on page 3).

Furthermore, Examiner states that Applicant does not show "automatic" selective activation and deactivation of said at least one air blower and said at least one water pump.

In response, Applicant respectfully disagrees and asserts that automatic activation and deactivation of the spa components, including the pump and air blower, is described repeatedly in the specification as filed.

Applicant Specifically Describes How the Spa Controller Performs Automatic Functions

On page 2 of the specification, lines 3 – 5 of the first full paragraph, Applicant states that prior art spa controller 11 performs automatic functions,

> When the spa is no longer in use, and the users have left the spa, spa controller 11 continues to automatically control the temperature of the spa.

In the above sentence, Applicant specifically states spa controller 11 automatically controls the temperature of the spa. On page 5, first full sentence, Applicant discusses how the programming of spa controller 12 is modified beyond that of spa controller 11 to automatically perform more useful functions,

> The programming of spa controller 12 has been modified from spa controller 11 (FIG. 1) to include the ability to be able to utilize information reported by sensor 17 to better regulate the water temperature of spa 2 to prevent freezing of its associated piping.

Applicant States that Spa Controller 12 has Programmed CPU

On page 4, first paragraph under the heading "First Preferred Embodiment, line 4, Applicant states,

> In a preferred embodiment, ***spa controller 12 contains a CPU that is programmed to maintain the temperature of the water in spa tub 7 and the water in spa 2's piping in an optimum operating range*** (i.e., below a level that is too hot for a user, but above the level which would cause freezing of the water in spa 2's piping). Emphasis added.

It is commonly understood that a programmed CPU is a device that is capable of performing automatic functions. For example, Cambridge Learner's Dictionary defines the noun "program" as "a series of instructions which can be put into a computer in order to make it perform an operation". The reference Web Site "Dictionary.com" defines "program" as "a set of coded instructions that enables a machine, especially a computer, to perform a desired sequence of operations." The Web Site "Dictionary.com" also defines "programming" as "To train to perform automatically in a desired way, as if programming a machine. . ." Also, The Cambridge Grammar of the English Language Web Site reference defines "program" as "a series of instructions that make a computer perform an operation" and it defines the verb "program" as an action "to instruct (a computerized device or system) to operated in a particular way or at a particular time – The CD player can be programmed to play the songs in any order."

Applicant Provides an Example of Automatic Control of the Pump and Heater

For example, on page 4, second paragraph under the heading "First Preferred Embodiment", Applicant states,

> In the present invention, sensor 3 is still part of the freeze control system in that when the temperature in spa tub 7 drops below a first predetermined value, ***sensor 3 sends a signal to spa controller 12.***This first predetermined value can be high (i.e., 104 deg. F.) for spas that get fairly regular use, or low (i.e., 59 deg. F) for example, for a ***homeowner who did not plan on using his spa for an extended period of time.*** In the first preferred embodiment, Spa controller 12 is model number SSPA, manufactured by Gecko Electronique with offices in Quebec City, Quebec, Canada. ***Spa controller 12 turns on heater 9 and water pump 13 when the temperature in spa tub 7 drops below the first predetermined***

> ***value.*** Hot water is then pumped back into spa tub 7. Heater 9 and water pump 13 will remain on until sensor 3 reports a second predetermined temperature slightly above the first predetermined temperature. However, in the preferred embodiment of the present invention, sensor 5 is no longer part of the freeze control system. Instead, sensor 5 is used only to shut off heater 9 when the temperature at heater 9 gets too hot (approximately 119 deg. F.). (emphasis added).

Clearly, the above sentences describe automatic, not manual, control of the spa's heater and pump. The above paragraph describes in detail how spa controller 12 automatically controls heater 9 and water pump 13. It can automatically control the spa's components even "for a homeowner who did not plan on using his spa for an extended period of time". For example, if the homeowner is not using the spa for an extended period of time, he is not present to manually turn the heater and pumps on and off. Spa controller 12 will do this automatically.

Applicant Provides Another Example Showing

Automatic Control of Water Pumps and the Air Blower

On page 5, Applicant discusses how the "Smart Winter Mode" programming automatically controls water pumps 13 and 14 and air blower 16 in automatic response to the ambient air temperature sensed by sensor 17:

> Applicants call this programming "Smart Winter Mode" and its functionality is illustrated by reference to Table 1 below.

TABLE 1

Ambient Air Temp	Conduct a 1 minute purge every:
40 deg. F.	2 hours
28 deg. F.	1 hour
14 deg. F.	30 minutes
5 deg. F.	15 minutes

> In the first preferred embodiment, as the temperature at sensor 17 decreases to 40 deg. F sensor 17 will send an electrical signal to spa controller 12. Spa controller 12 will then start water pumps 13 and 14 and air blower 16. They will each run for 1 minute every two hours. As shown in Table 1, if the temperature drops to 28 deg. F at sensor 17, water pumps 13 and 14 and air blower 16 will conduct a 1-minute purge every hour. Likewise, when sensor 17 reports a temperature of 14 deg. F, the system will purge every 30 minutes and at 5 deg. F. the system will purge

> every 15 minutes. In the first preferred embodiment, as an extra added measure of protection, after the ambient has risen above 40 deg. F., spa controller 12 will continue to run water pumps 13 and 14 and air blower 16 for one minute every 2 hours for the next 24 hours.

The above paragraph discusses automatic, selective control of water pumps 13 and 14 and air blower 16. As the ambient air temperature decreases, spa controller 12 will automatically start water pumps 13 and 14 and air blower 16 for a 1 minute purge. As the temperature continues to decrease, spa controller 12 will automatically increase the frequency of the purges.

Automatic, Selective Activation and Deactivation is Shown

As can be seen by referring to the above discussion, Applicant showed in the application as filed automatic, selective activation and deactivation of the water pumps and air blower by spa controller 12 based on inputs from the ambient air sensor. Therefore, respectfully submits that no new matter has been added and requests that Examiner's rejection under 35 USC 112 be withdrawn.

Claim Rejections – 35 USC 103

Examiner has rejected Claims 26 – 38 under 35 USC 103(a) as being unpatentable over Tompkins in view of Dundas. Applicant submits that this rejection is improper.

In responding to Applicant's arguments of 12/26/2002, Examiner states,

> In response to Applicant's arguments regarding the Dundas reference, it is pointed out that the Dundas reference does indeed describe an automatic control (note lines 16 – 27 in col. 2) as well as the option of using a manual operation (note lines 22 – 25 in col. 4).

In response, Applicant submits that Applicant does not claim just "automatic control". Applicant's claims all have more limitations. For example, Claim 26 includes the limitations,

> wherein said computer ***automatically*** selectively activates and deactivates said at least one water pump ***based upon inputs from said second sensor*** so that the temperature of the water inside said spa tub and said spa piping is maintained above the freezing level. Emphasis added.

Applicant's second sensor is the ambient air sensor. Although Dundas shows an ambient air sensor that is utilized to automatically control Dundas' air pump, Dundas does not show or suggest that the ambient air sensor can be used for automatic freeze control.

Dundas Teaches Away From Using an
Ambient Air Sensor for Automatic Freeze Control

Applicant respectfully directs Examiner's attention to the only sentence in Dundas that discusses the utilization of Dundas' device for freeze control (column 4, lines 23 –26). Dundas states:

> It may be desirable to manually operate the system even in subfreezing weather to blow air into water and circulate the water and draw the warmer water near the bottom upward to prevent ice from forming. (emphasis added)

Please note, that Dundas makes a specific point that to operate as a freeze control system, his device needs to be manually operated. This means that in Dundas, the utilization of an ambient air sensor is not used when the system is being utilized for freeze control. Indeed, nowhere in Dundas is it contemplated that the utilization of an ambient air sensor for freeze control will be effective.

Except for when operating as a freeze control system, throughout Dundas the ambient air sensor is used to determine when there is a significant temperature differential between the warmer ambient air and the water. When temperature differential is reached Dundas' air pump automatically pumps the ambient air into the water to warm the water. Dundas must have known that in subfreezing weather the ambient air is at least as cold or probably colder than the temperature of the water in the pool. It follows, then, that his system (which requires the ambient air to be warmer) would not be effective to automatically control freezing in the pool. Therefore, this is why Dundas specifically stated that his system should be operated manually in subfreezing weather to "circulate the water and draw the warmer water near the bottom upward to prevent ice from forming".

In rejecting Applicant's claims, Examiner has stated,

Although Tompkins et al. fail to disclose the use of an air temperature sensor and although Tompkins et al. use water temperature sensor 21 as well as other water sensors to operate the freeze control system, attention is directed to Dundas who discloses another freeze control system for a spa or pool that uses both a water temperature sensor and an ambient air temperature sensor to activate the control system in order the heat the pool using minimal energy with less waste and expense.

Applicant submits that this is an incorrect statement. Dundas does not disclose a freeze control system for a spa that uses an ambient air temperature sensor to activate the control system. As stated above, Dundas makes a specific point that to operate as a freeze control system, his device needs to be manually operated. This means that in Dundas, the utilization of an ambient air sensor is not used for automatic selective activation and deactivation of Dundas' pump when the system is being utilized for freeze control. When Dundas system is being utilized for freeze control, the ambient air sensor serves no purpose. Instead, Dundas has an operator manual activate and deactivate his pump to circulate the water to prevent freezing. Therefore, Applicant submits that Dundas is only useful to show that ambient air sensors exist.

Applicant does not claim he was the first to invent the ambient air sensor. As stated previously, Applicant's claims are much more limited. Neither Tompkins, Dundas, nor any other reference cited by Examiner discloses an ambient air sensor used in conjunction with a computer for automatic freeze control. Had it been obvious, Dundas would have disclosed it rather than specifically go to the trouble of stating that it would be desirable to manually operate his system to prevent ice from forming.

Applicant respectfully requests that Examiner allow all claims as presently amended or provide another reference or references that show alone or in combination Applicant's invention as Claimed.

Examiner's Comment on Attacking References Individually

Examiner stated,

> In response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references.

In response, Applicant submits that the references in combination do not disclose the claimed invention. Tompkins does not mention an ambient air sensor at all. Dundas, while it does mention an ambient air sensor, as explained above does not mention an ambient air sensor that provides a signal to a computer for automatic control of pump as part of a freeze control system to prevent freezing. Not only do neither of these references disclose the claimed invention, it can therefore be seen that the combination of these two references do not show the claimed invention.

CONCLUSION

Thus, for all the reasons given above, this application, as the claims are presently limited, define a novel, patentable, and truly valuable invention. Hence allowance of this application is respectfully submitted to be proper and is respectfully solicited.

Respectfully Submitted,

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